

NORTH ATLANTIC HURRICANES AND TROPICAL DISTURBANCES OF 1948

H. C. SUMNER

[Weather Bureau, Washington, D. C.]

The hurricane season of 1948 came to a close on November 10, when the last of 10 North Atlantic hurricanes and tropical disturbances dissipated into an area of squalls northeast of Cape Hatteras. Of the 10 storms detected during the year 5 reached the coast line of the United States and 5, affecting only islands, spent their energy at sea. The 6 tropical storms that developed winds of hurricane force (75 m. p. h. or more) were also equally divided in this respect.

Damage to property and crops in the United States, resulting from these storms, has been estimated at \$18,400,000. Only three persons lost their lives. The small number of fatalities compared with the figures for property damage is unusual when compared with the ratio for previous seasons, but is in line with a trend that has been evident for many years. The trend stems from the fact that most property is immovable and, even with adequate warning, is difficult to protect. People, in contrast, can be evacuated and those following the advices of an alert warning service have little to fear when a hurricane approaches. A survey of the causes of hurricane casualties shows that personal carelessness is playing an ever-increasing role.

The following are individual reviews of all North Atlantic hurricanes and tropical disturbances that occurred during the 1948 season. A synopsis of the important features of these storms is given in Table 3; their tracks, numbered I to X, chronologically, are plotted on the chart following this article.

I. *Minor tropical disturbance of May 10-12.*—The first tropical storm of the season formed from an easterly wave south of the Bahamas, moved north-northwestward skirting the east Florida coast, and crossed the Georgia coast line near Savannah during the late afternoon of May 12. The highest wind, about 30 m. p. h., was reported from a ship east of the center.

II. *Tropical disturbance of May 22-28.*—Originating in a widespread low-pressure area southwest of Hispaniola, this storm began a northeastward movement and by 7 a. m. on May 22 was centered over southwestern Haiti accompanied by widespread heavy rains. These rains caused floods throughout much of Hispaniola. After leaving Haiti the storm moved north-northeastward and by May 25 was centered near latitude 30° N., longitude 69° W. where it remained practically stationary for 2 days.

The highest winds reported were about 50 m. p. h. observed from a reconnaissance plane which was flown through the storm on the 25th. During the afternoon of the 27th it began moving northward more rapidly and became an extra-tropical storm. Press reports from the Dominican Republic indicate that 80 persons were drowned in floods associated with this disturbance.

III. *Small tropical disturbance of July 7-11.*—This disturbance formed in an area of unsettled weather in the northern Gulf of Mexico during the afternoon of July 7, moved northeastward and passed inland over Pensacola, Fla., during the night of July 8. A highest wind of 35 m. p. h. was observed during a thunderstorm at the Pensacola station. This disturbance caused heavy rains over extreme northern Florida, southern Alabama, and southern Georgia. Little damage has been reported.

IV. *Hurricane of August 26-September 1.*—This storm was first reported during the night of August 25-26 by the S. S. *Virginia* and the S. S. *Petrakis Nomikos* when they encountered winds of Beaufort force 9 (47-54 m. p. h.) and

other signs of a hurricane forming near latitude 20.5° N., longitude 60.5° W. From this area the hurricane moved on a west-northwesterly course to a point about 250 miles south of Cape Hatteras where the forward movement slowed and a turn to northeast began. This trajectory was some distance east of Hatteras and no dangerous winds occurred on land. Tides, however, were high on the North Carolina coast and justified evacuations and other precautions which were taken in the area.

A highest wind of 120 m. p. h. was estimated from reconnaissance aircraft which reconnoitered the storm on August 28 and 29. No loss of life or damage of consequence has been reported.

V. *Tropical storm of August 30-September 2.*—The first indication of the existence of this storm came from the S. S. *Benjamin H. Grierson*, which transmitted the following report during the afternoon of August 30:

Position 2100 G. C. T., 14° N., 55° 45' W.
Vessel hove to; barometer 29.80; wind ESE
10; very high easterly seas; stratocumulus clouds.

From the above position this storm, of small diameter, advanced westward passing between St. Lucia and Martinique in the Lesser Antilles during the early evening of August 13. At 8:40 a. m. on September 1, a reconnaissance plane located the center at latitude 14.12° N., longitude 63.15° W. with lowest pressure 1007 millibars (29.74 inches) and highest wind 28 knots. Subsequent reconnaissance failed to locate the center. This storm was minor in character, and it apparently weakened from the time of the report from the S. S. *Grierson* until it dissipated near latitude 15° N., longitude 66° W. No reports of property destruction or loss of life from the storm have been received. Resulting heavy rains, especially on the island of Puerto Rico, were very beneficial to crops and water supply and more than offset minor damage caused by floods.

VI. *Gulf hurricane of September 3-6.*—This hurricane developed in an area of unsettled weather that had prevailed for several days in the southwestern Gulf of Mexico. Aircraft reconnaissance reported development of a complete circulation with an ill-defined center on the morning of September 3. From a position near 25° N., 92.5° W. the storm moved north-northeastward and crossed the Louisiana coast line a short distance west of Grand Isle. The lowest pressure at Grand Isle was 990.2 millibars (29.24 inches) at 3 a. m. and the highest winds 63 m. p. h. from the south-southeast at 2 a. m. on September 4. Passing over a sparsely settled coastal area, the center reached New Orleans early on the 4th of September, with a highest wind velocity of 78 m. p. h. from the north-northeast recorded at Moisant Airport at 3:50 a. m. At Huey Long Bridge a low pressure of 989.2 millibars (29.21 inches) was recorded from 6:15 to 6:20 a. m. with winds of 64 m. p. h. Moving inland the storm reached Hattiesburg, Miss., at 2 p. m., with winds reduced to 40 m. p. h. Thereafter it decreased steadily in intensity, but the circulation was maintained as it passed near Memphis, Tenn., and Cairo, Ill.

Tides at New Orleans rose from 2.0 feet on September 3 to 4.7 feet on September 4. The highest tide along the Mississippi coast was about 6 feet. At Mobile, Ala., it reached 5.3 feet and at Pensacola, Fla., 3.4 feet.

In New Orleans Parish damage was confined to small boats, signs, trees, and power and communication lines, with damage estimated at \$100,000. The heaviest

damage occurred near Grande Isle when immovable oil-drilling rigs and equipment in the Gulf of Mexico were demolished by heavy seas.

No loss of life or serious injuries directly attributable to the hurricane were reported. Total property and crop damage was approximately \$900,000 divided among the four States affected as follows: Louisiana \$660,000; Mississippi \$140,000; Alabama \$88,000, and Florida \$12,000.

VII. *Hurricane of September 3-15.*—This hurricane, which had an unusually long history, was first reported on September 3 when it moved off the African mainland near Dakar. It followed a westerly course during the next several days until on September 9, it was detected by aircraft reconnaissance near latitude 17.5° N., longitude 47° W. Thereafter it moved on a broad curving path over the Atlantic, passing a short distance west of Bermuda on the 13th. Winds at Bermuda exceeded 100 m. p. h., and damage was reported as heavy. After passing Bermuda the hurricane continued its broad curve over the North Atlantic, passing south of Cape Race, Newfoundland, on the 15th. It is notable that for the second year in a row a hurricane has been traced to a point of origin over West Africa. During its 12-day history this hurricane traveled approximately 3,500 miles, or roughly the distance from New York to London.

VIII. *Florida hurricane of September 18-25.*—This most destructive hurricane of 1948 developed in the western Caribbean between Jamaica and Grand Cayman Island on September 18. It formed from an easterly wave that had been under observation since it passed through the Lesser Antilles on the 14th. After a center developed on the 18th, it moved very slowly, turned to a northerly direction, and passed over western Cuba with the center moving between Havana and Matanzas on the 20th. At this time it was a fully developed hurricane, with winds well over 100 m. p. h., and reports indicate that the city

of Matanzas suffered extensive damage. Some damage occurred at Havana where the wind reached 90 m. p. h. from the north. Press reports indicate that 10 persons were killed by the storm in Cuba and that property damage reached "several million dollars."

Leaving Cuba the hurricane crossed the Florida Straits and by noon of the 21st the center was very close to Key West and due east of the station. The lowest barometric pressure recorded on the Keys was 963.4 millibars (28.45 inches) observed at the Boca Chica Airport, 8 miles east-northeast of the Key West city office. The wind speed at this same station reached 122 m. p. h. before the anemometer was blown away. This was the highest reported in this hurricane but undoubtedly higher winds were experienced. Boca Chica was in the western portion of the calm center for a period of 15 minutes beginning at 11 a. m., September 21.

A tabular listing of lowest pressure, maximum wind, total rainfall, and miscellaneous meteorological data for selected stations in Florida is contained in TABLE I. Stations are arranged in a time sequence corresponding, as nearly as possible, to the order in which they were affected by this hurricane.

After leaving the Keys the center moved onto the mainland a short distance east of Everglades City, crossed Lake Okeechobee between Clewiston and Belle Glade and passed into the Atlantic at Jensen Beach near Stuart. By the time the Lake Okeechobee section was reached, wind velocities had been reduced to about 90 to 95 m. p. h., while on the Atlantic coast where the center passed to sea readings were slightly below hurricane force for sustained velocities, but with gusts above hurricane force. There was some intensification of the hurricane after it moved northeastward between Hatteras and Bermuda, finally reaching a point south of Newfoundland, on September 25.

Table 1.—Meteorological data for hurricane Sept. 18-25, 1948

Station	Date	Pressure ¹		Wind data						Rain-fall	Miscellaneous
		Low	Time	5-min. max.	Time	1-min. max.	Time	Gusts	Hours of gales ²		
Dry Tortugas.....	21	29.17	11:00 a. m.	76	10:55 a. m.	78	10:58 a. m.		48		
Key West, WBAS.....	21	28.46	11:15 a. m.			122 NNW	12:50 p. m.	150	42		Lull ¼ hour. Did not clear.
Key West, WBO.....	21	28.73	11:30 a. m.	73 NW	12:07 p. m.	75 NW	12:08 p. m.		16	6.33	
Sombrero Key.....	21	29.12	1:00 p. m.	120 SE	1:00 p. m.	120 SE	1:00 p. m.				
Tavernier.....	21	29.32		80 SE				90		6.02	Wind lulled to 12-18 m. p. h. for 10-15 minutes. 5.0-ft. tide.
Carysfort Reef.....	21	29.24	2:15 p. m.	74 ENE	7:20 p. m.	80 ENE	7:23 p. m.		44		
Everglades City.....	21					120 NNW					
Naples.....	22	28.99	1:15 a. m.	80 W	5:30 a. m.	86 W	5:30 a. m.	87	15	4.90	
Fort Myers.....	22	29.05	3:30 a. m.			60 NNW	5:30 a. m.	58	15	8.69	
Miami, WBO.....	22	29.11	4:42 a. m.	62 SE	12:35 a. m.	76 SE	(21) 2:43 p. m.	32			
						76 S	(22) 12:35 a. m.				
Miami, WBAS.....	22	29.09	5:15 a. m.	70 SSE	12:58 a. m.	75 SSE	12:56 a. m.	90	31	11.00	
Moorehaven.....	22	28.62	6:00 a. m.	60 NE	6:00 a. m.	79 NE	6:00 a. m.		29		Partial lull; 20 m. p. h., 9 a. m.
Clewiston.....	22	28.47	6:30 a. m.	84 ENE	5:04 a. m.	96 ENE	5:04 a. m.		19	10.07	No lull. Flooded to depth of 2 or 3 ft.
Lake Placid.....	22	29.15	8:45 a. m.	55 NW	10:30 a. m.	65 NW	11:00 a. m.	81		8.43	Wind shifted from east through north to northwest.
Belle Glade.....	22	28.54	8:00 a. m.	60 W	2:00 p. m.	60 W	2:00 p. m.			8.47	Lull about ¼ hour 8-8:30 a. m.
Canal Point.....	22	28.50	8:30 a. m.	100 W	2:30 p. m.					10.00	Lull 10 minutes, 8:30 a. m., and another lull at 12 noon to 12:45 p. m.
Hillsboro Light.....	22	29.05	8:30 a. m.	83 NE	2:05 a. m.	87 NE	2:06 a. m.		39		
Okeechobee City.....	22	28.86	10:15 a. m.	44 NW	2:30 p. m.	76	2:30 p. m.		4	4.89	Lull 2-2:30 p. m.; shift from south-east to southwest.
Pahokee.....	22			70-80 NNW	3:00 p. m.	90-100	2-4 p. m.				Lull 8 a. m., ¼ hour; lull again 11 a. m.; sky clear both lulls.
West Palm Beach.....	22	28.85	8:45 a. m.			58 W	3:42 p. m.	84	23	9.04	
Stuart.....	22	28.51	12:30 p. m.	60 NW						6.36	Lull 2-3:30 p. m.; sky cleared; sun out.
Fort Pierce.....	22	28.82	12:30 p. m.	58 ESE	5:00 a. m.	55 ESE	5:00 a. m.		6		
Melbourne.....	22	29.02	2:27 p. m.	48 NNE	10:29 a. m.	52 NE		74	8	8.53	
Cocoa Beach.....	22			60 NNE	10:30 a. m.			60			Indian River highest in many years.
Vero Beach, WBAS.....	22	28.83	2:45 p. m.	55 NW	5:30 p. m.	80	5:06-5:30 p. m.	70-80		5.25	Wind lulled to 10-20 m. p. h., 2:30 p. m.
New Smyrna.....	22	29.36	2:00 p. m.			52 NE			6	2.25	
Drane Field (Lakeland).....	22			40 N	10:35 a. m.	45 N	10:35 a. m.				
Lakeland, WBO.....	22	29.33	2:30 p. m.	24 NE	1:25 p. m.	29 NW	12:25 p. m.				
Orlando.....	22	29.27	1:45 p. m.	35 N	1:45 p. m.					5.71	Lightning to west 2-3 a. m., 22d.
Titusville.....	22					40 NE					
Daytona Beach.....	22	29.34	4:28 p. m.	31 NNW	2:10 p. m.			52		2.09	Thunder heard a few times.
St. Augustine.....	22			48 NE	5:45 p. m.	63	5:45 p. m.		5		

¹ Pressure reduced to sea level.

² Over 38 m. p. h.

³ Estimated.

TABLE 2.—Meteorological data for hurricane of October 4-8, 1948

Station	Date	Pressure ¹		Wind data						Rain-fall	Miscellaneous
		Low	Time	5-min. max.	Time	1-min. max.	Time	Gusts	Hours of gales ²		
Key West WBO	5	29.25	12 noon	45 N	12:12 p. m.	56 NE	11:35 a. m.			4.55	Severe lightning and thunder 11:19-11:24 a. m.
Boca Chica WBAS	5	29.16	12:25 p. m.			* 85+ N		* 120 N		3.73	
Sombrero Key	5	28.80	1:15 p. m.	* 100 S	1:00 p. m.	* 100 S	1:00 p. m.				No lull.
Alligator Light	5	29.38	3:00 p. m.			* 96 SE	1:00 p. m.	* 110			Do.
Tavernier	5	29.38	5:00 p. m.			60-70 SSW	6:00 p. m.			6.40	Lull 5:45-6:05 p. m.—wind shifted south-southeast to west-north-west.
Homestead Experiment Station	5	28.95	6:00 p. m.	* 90 NW	7:30 p. m.					8.81	
Fowey Rock Light	5	29.16	8:00 p. m.			68 ESE	6:25 p. m.	90 NW	4	9.95	Lull 7-7:35 p. m.—wind dropped to 3 m. p. h.
Miami WBAS	5	28.92	7:06 p. m.					90 NW	6	6.02	Lull 7-7:45 p. m.—wind dropped to 19 m. p. h.—no flat calm. Wind register defective.
Miami WBO	5	28.96	7:15 p. m.	79 NW	9:05 p. m.	86 NW	9:05 p. m.				
Hillsboro Light	5	29.26						* 90-100			
Everglades City	5	29.50	4:00 p. m.	20 N	4:30 p. m.	19 N		35 N		2.50	
Fort Myers	5	29.64	5:26 p. m.				7:07 p. m.				
Okeechobee	5	29.02	9:00 p. m.	30 NNW	10-11 p. m.						
West Palm Beach WBAS	5	29.45	10:30 p. m.			55 N	11:05 p. m.	62	2 1/4	7.48	No lull.
Belle Glade Experiment Sta.	5	29.59	11:15 p. m.	24 E	9:50 p. m.	30 E	9:50 p. m.			1.16	
Vero Beach WBAS	5	29.64	1:30 a. m. 6th	39 NE	10:30 p. m.	39 NE	10:30 p. m.			.60	

¹ Pressure reduced to sea level.² Winds over 38 miles per hour.³ Estimated.

An unusual feature of this hurricane was the number of calms and lulls reported from widely separated points. Several stations in the Lake Okeechobee area reported two distinct "eyes" with blue sky and calms in each, spaced several hours apart. Such widely separated places as Tavernier, Boca Chica, Okeechobee City, and Stuart reported lulls. These stations lie 40 to 80 miles apart on an east-west axis. These reports appear to be substantiated by actual records and leave little doubt that the central vortex was distorted, or even divided into several partially or fully developed centers.

Mr. Grady Norton, meteorologist in charge of the Miami Office has written a descriptive account of this phase of the hurricane which is quoted below:

When the hurricane was in Cuba, a news writer called it "a blind behemoth," but we believe a more descriptive character comes from mythology in Cyclops, the one-eyed giant. To carry the simile further, Cyclops must have encountered Ulysses in Cuba, because something happened to his eye! When he came out into the Florida Straits, the "eye" was distorted and elongated, and to some extent broken up, and it reminded us of Argus, otherwise known as Panoptes, for when it came over Florida on the 21st and 22d there was an eye for everybody! There were so many eyes reported at so many widely separated places, and the movement was so slow (about 8 to 10 m. p. h.), we were reminded of an oxcart. So "Oxcart Panoptes" made his leisurely way up through the Florida Everglades ogling every community in the southeastern part of the State!

A summary of casualties and estimated damage follows:

Casualty and damage summary for Florida

Deaths	3
Injuries requiring hospital care	45
Homes destroyed	39
Homes damaged severely	1,161
Buildings other than homes destroyed	40
Buildings other than homes damaged	237
People sheltered in 213 Red Cross shelters	32,323

Damage estimates

Property damage (all kinds)	\$5,000,000
Crop damage (all kinds)	6,500,000
Power and communications	300,000
Highways, streets, and bridges	200,000

Total for Florida 12,000,000

Heavy rainfall, which amounted to a total of 10 to 11 inches in places and averaged about 8 inches for the entire Everglades-Okeechobee area, caused considerable flooding throughout the area. Clewiston was flooded to a depth of 2 or 3 feet, La Belle was under water for several days, while Everglades City got its usual bath of salt water from the Gulf. Flooding of pastures caused loss of some cattle, and required the extensive evacuation of herds to higher ground. In the lower east coast and Indian River areas there was considerable loss to citrus and other

tropical fruits as well as to fall truck crops.

IX. Hurricane of October 4-8.—Forming in the western Caribbean Sea this hurricane was first reported as an organized storm at 10:45 a. m. on October 4, near latitude 19.6° N., longitude 85° W. It increased rapidly in intensity during the night and moved northeastward across Cuba with the center passing a short distance west of Havana at 6 a. m. of the 5th. The highest wind at Havana was 132 m. p. h. Considerable damage resulted in the city and crop losses were heavy in Havana and Pinar Del Rio provinces. There were 11 deaths and 300 injuries in Cuba, with property damage estimated at \$6,000,000.

By noon of the 5th the center was over the Keys. At Bahia Honda Bridge and Marathon a lull of about 45 minutes occurred. Winds were well over 100 m. p. h. in this area of the Keys. By 7:25 p. m. the calm center was over Miami. The Miami Airport Station was apparently very near the center of the storm, with lowest pressure 979.3 millibars (28.92 inches) with the wind dropping to 3 m. p. h. At the Airport the lull lasted from 7 p. m. to 7:35 p. m. and at the City Office 7 miles to the east, from 7 p. m. to 7:45 p. m. However, at the City Office the wind did not drop below 19 m. p. h. and the lowest pressure was 980.7 millibars (28.96 inches).

Because of a better exposure the highest wind, 86 m. p. h., from the northwest with several gusts of 15 seconds above 90 m. p. h., occurred at the City Office. A tabular listing of meteorological data associated with this hurricane is contained in TABLE 2.

Over Florida the hurricane moved at a fairly rapid rate of about 18 to 20 m. p. h. until it passed into the Atlantic in the Fort Lauderdale-Pompano area about 9:30 p. m. of the 5th. Since the lull lasted 35 to 45 minutes at Miami, the center of the storm was about 15 miles in diameter. The sky remained overcast with low stratus clouds during passage of the center.

Three tornadoes were reported along the advancing edge of this hurricane; one at Opa Locka destroyed several houses, another at Fort Lauderdale caused minor damage, and a third at Pompano destroyed about 25 houses, many of which were occupied at the time. A characteristic tornado dip and recovery in pressure recorded on barograph traces from the Keys to Hillsboro Lighthouse seems to indicate that a single tornado may have dipped to earth at several places as it progressed northeastward in advance of the hurricane vortex.

An unusual occurrence during this storm was reported from a small summer colony situated on Cudjoe Key. A home was unroofed during the September hurricane and

the roof blown or floated northwestward for a distance of about 200 yards. Two weeks later, during the October hurricane, the same roof was floated back across the highway and came to rest in almost the exact location in which it had been originally constructed.

No deaths or critical injuries have been reported from Florida as a result of this hurricane. It is extremely unusual for a hurricane of such intensity to pass over heavily populated areas without loss of life. A summary of casualties and estimated damage follows:

Casualty and damage summary for Florida

Deaths.....	None
Injured.....	42
Homes destroyed.....	36
Homes damaged severely.....	638
Buildings other than homes destroyed.....	45
Buildings other than homes damaged.....	50
Persons sheltered in 143 Red Cross shelters.....	21, 663

Damage estimates

Property damage (includes flooding).....	\$3, 500, 000
Crop damage.....	1, 500, 000
Power and communications.....	400, 000
Highways, streets, etc.....	100, 000
Total.....	5, 500, 000

The Miami office issued 26 advisory and warning bulletins in connection with this hurricane.

After leaving Florida there was an acceleration in the forward movement of the hurricane as it passed north of Grand Bahama Island, with West End reporting winds of near hurricane force. Continuing a rapid northeastward and later eastward movement, the center passed almost directly over Bermuda during the late afternoon of the 7th, where winds in excess of 100 m. p. h. were experienced. The storm later dissipated in mid-Atlantic in the vicinity of latitude 32° N., longitude 48° W.

X. *Tropical disturbance of November 8-10.*—A tropical disturbance was detected on the afternoon of November 8 over the Atlantic, in the vicinity of latitude 26° N., longitude 67.5° W. At that time it had a small area of winds of about hurricane force. Estimates made from reconnaissance planes indicated highest winds of about 60 to 70 knots which were maintained during the next 2 days as the storm moved on a curving course to the northwest and north. By late afternoon of the 10th the organized center began to disintegrate and the wind rapidly lost force, so that by the time it passed east of Hatteras it had dissipated into an area of squalls to the east of the original center. No damage has been reported in connection with this storm.

Table 3.—North Atlantic hurricanes and tropical disturbances of 1948

[Number of storm in table corresponds to number of track on following chart]

Storm	Date	Area where first reported	Coast lines crossed	Highest wind speed reported	Lowest pressure reported ¹	Place of dissipation reported	Intensity	Remarks
I	May 10-12.....	South of the Bahamas.	Georgia.....	30 m. p. h. from a ship east of the storm center.	No data.....	Central North Carolina.	Minor disturbance.	No damage reported.
	May 22-28.....	Southwest of Hispaniola.	Haiti.....	50 m. p. h. estimated from reconnaissance plane near 30° N. latitude; 60° W. longitude.	do.....	Atlantic Ocean northwest of Bermuda.	Not of hurricane intensity.	Press reports indicate 80 persons were drowned in the Dominican Republic by floods which resulted from this disturbance.
III	July 7-11.....	North-central Gulf of Mexico.	Western Florida.	35 m. p. h. at Pensacola, Fla.	do.....	Western Tennessee.	Small tropical disturbance.	The disturbance caused heavy rains over extreme northern Florida, southern Alabama, and southern Georgia. No damage reported.
IV	Aug. 26-Sept. 1.	Northeast of Leeward Islands.	None.....	120 m. p. h. estimated from reconnaissance aircraft along the track between longitudes 29° and 30° N.	do.....	Atlantic Ocean south of Newfoundland.	Hurricane.....	No dangerous winds occurred on land.
V	Aug. 30-Sept. 2.	Near latitude 14° N., longitude 53° W.	None.....	Beaufort force 10 (55-63 m. p. h.) reported by the S. S. <i>Benjamin H. Grierson</i> at latitude 14° N., longitude 55° 27' W.	1009.1 millibars (29.80 inches) reported by the S. S. <i>Benjamin H. Grierson</i> .	Eastern Caribbean Sea.	Not of hurricane intensity.	Heavy rains on the island of Puerto Rico were very beneficial to crops and water supply, and more than offset minor damage from floods.
VI	Sept. 3-6.....	Central Gulf of Mexico.	Louisiana.....	78 m. p. h. from the north-northeast at Molsant Airport, New Orleans, La.	989.2 millibars (29.21 inches) at New Orleans City Office.	Northern Indiana.....	Hurricane.....	Damage in Louisiana, Mississippi, Alabama, and extreme northwest Florida estimated at \$800,000. No loss of life has been reported.
VII	Sept. 3-15.....	Western Africa.....	None.....	140 m. p. h. estimated from reconnaissance planes along the track from 26° to 35° N. latitude.	No data.....	Atlantic Ocean east of Newfoundland.	do.....	Reports indicate heavy damage in Bermuda.
VIII	Sept. 18-25.....	Between Jamaica and Grand Cayman Island.	Cuba and Florida.	122 m. p. h. at Boca Chica Airport near Key West. ²	963.4 millibars (28.45 inches) at Boca Chica Airport.	Atlantic Ocean southeast of Newfoundland.	Severe hurricane.	Total damage in Florida estimated at \$12,000,000, of which \$5,500,000 was property damage and \$6,500,000 damage to crops. 10 persons were reported killed in Cuba and 3 lost their lives in Florida. Damage in Florida estimated at \$5,500,000.
IX	Oct. 4-8.....	Northwestern Caribbean Sea near latitude 19° 36' N., longitude 85° W.	Cuba, Florida, and Bermuda.	132 m. p. h. at Havana, Cuba.	979.3 millibars (29.02 inches) at Miami.	Mid-Atlantic Ocean.	do.....	
X	Nov. 8-10.....	Near latitude 26° N., longitude 67.5° W.	None.....	70 to 80 m. p. h. estimated from reconnaissance aircraft.	No data.....	Over the ocean northeast of the North Carolina Capes.	About hurricane intensity.	No strong winds occurred on land.

¹ Pressure reduced to sea level.

² Anemometer failed with wind registering 122 m. p. h.

Tracks of North Atlantic Hurricanes and Tropical Disturbances of 1948

